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(E72-10186) INVESTIGATION TO DEVELOP A  
MULTISTAGE FOREST SAMPLING INVENTORY SYSTEM  
USING ERTS-1 IMAGERY Bimonthly P.G.  
Langley (Earth Satellite Corp., Berkeley,  
Calif.) 10 Nov. 1972 4 p CSC1 08F G3/13  
Unclass 00186

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ERTS Contracting Officer  
Code 245, GSFC  
Greenbelt, Maryland 20771

Subject: ERTS-1 Bi-Monthly Progress Report

A. Title: Investigation to Develop a Multistage Forest Sampling Inventory System Using ERTS-1 Imagery;  
PR-126

B. Principal Investigator: Philip G. Langley  
Earth Satellite Corporation  
2150 Shattuck Avenue  
Berkeley, California 94204

C. Problems Impeding Investigation: No ERTS-1 data has been received as of this date.

D. Accomplishments to Date

a. Final computer processing and formatting of ground data and low altitude 70mm data has been completed already for use with U2 and satellite imagery.

b. Using an IMANCO image analyzing computer, data has been read from 1/40,000 scale, black and white IR photographs for all 321 parcels in Trinity County that are pertinent to this study. No computer processing of this data has been done yet.

c. Maps and descriptions of all first- and second-order control points within the study area have been acquired.

d. A digital terrain model has been generated for the Trinity County study area. This model will be used to make corrections for relief displacement on the ERTS images.

e. Development of a general image resectioning program has been completed.

f. A general coordinate transform program has been assembled to transfer data back and forth among geographic systems including: (a) latitude and longitude, (b) UTM, (c) secant plane, and (d) state plane coordinate systems.

#### D. 2. Plans for Next Period

a. A polynomial correction model will be developed to refine minor ERTS image distortions that remain after resectioning. This routine will be combined with the resectioning program.

b. A conversion program to convert map data from digitizer coordinates to geographic coordinates will be prepared.

c. Schut's computer programs for strip and block adjustment of aerial photos will be adapted to EarthSat's computer system and applied to the U2 photo coverage. In the process, geographic coordinates of control points will be determined for use in resectioning the ERTS imagery.

d. The corners of our primary sample units will be digitized from maps, converted to geographic coordinates, and then translated to the frame coordinates of the U2 and ERTS images.

e. Overlays will be prepared for the U2 and ERTS images showing the locations of the primary sample units. The images will then be ready for use in developing the interpretation techniques for predicting forest volumes.

#### E. Significant Results

No significant investigative results have been obtained to date. We have been primarily engaged in preparing the ground data and computer techniques for handling the image data.

#### F. Publications

No publications were released during this period.

#### G. Recommended Changes

No major changes in procedure are recommended at this time. However, the preparation of the resectioning and coordinate conversion routines has required a somewhat greater investigative effort than was originally anticipated. This will be detailed in our data analysis plan.

H. Changes in Standing Order Forms

A revision in the standing order was submitted on November 9, 1972.  
A copy is attached.

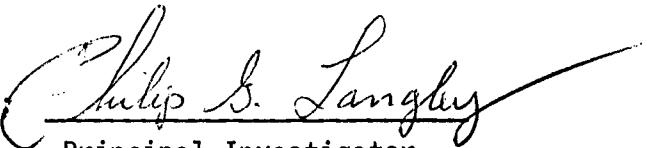
I. ERTS Image Descriptor Forms

No descriptor forms are enclosed as no ERTS imagery has been received.

J. Data Request Forms

Request forms for retrospective data were submitted on October 2 and November 8, 1972.

Submitted by

  
Philip B. Langley  
Principal Investigator  
PR 126

November 10, 1972

